

Appln. No. 09/756,451
Response dated May 24, 2004
Reply to Office Action of February 25, 2004

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A pultrusion process for preparing a continuous fiber-reinforced thermoplastic composite article by continuously pulling the fibers through a process comprising the steps of:
 - a) drawing a fiber bundle continuously through a melt obtained by heating a thermoplastic resin;
 - b) impregnating the drawn fiber bundle with the melted thermoplastic resin to form a composite melt;
 - c) drawing the composite melt through a consolidation die to form a thermoformable composite profile;
 - d) thermoforming the composite profile on-line to form along the length of the article: 1) a curve; 2) a twist; by which it is curved, twisted or provided with or 3) a varied cross-sectional shape; along its length; and
 - e) cooling the shaped composite article to solidify the thermoplastic resin and provide an article that is curved, twisted or provided with a varied cross-sectional shape along its length.
2. (original) The process of claim 1, wherein said thermoplastic resin includes a depolymerizable and repolymerizable thermoplastic resin having a T_g of not less than 50°C.
3. (currently amended) The process of claim 2-1, wherein said thermoforming is performed by passing said composite profile shaped article through a rotary/caterpillar-type die, at a temperature sufficiently high that the thermoplastic resin is at least softened enough that the composite profile can be shaped under the pressure imposed by the rotary die, and then cooling the shaped composite article to a temperature below the solidification temperature of the thermoplastic resin.
4. (canceled)
5. (previously presented) The process of claim 1 wherein said thermoforming is performed by passing said composite profile through a rotating die while maintaining the composite profile at an elevated temperature such that it remains thermoformable,

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and then cooling the shaped composite article to a temperature below the solidification temperature of the thermoplastic resin.

6. (previously presented) The process of claim 1, wherein said thermoforming is performed by hauling off one side of said composite profile at a faster rate than another side while maintaining the composite profile at an elevated temperature such that it remains thermoformable, and then cooling the shaped composite article to a temperature below the solidification temperature of the thermoplastic resin.
7. (previously presented) The process of claim 6, wherein said composite profile is passed through a curved cooling die that is equipped with an internal means which forces some of the reinforcing fibers to travel a longer path through the die than others, and wherein the thermoplastic is solidified in said cooling die, thereby forming a curved composite article.
8. (previously presented) The process of claim 1, wherein said thermoforming is performed by winding said composite profile on a mandrel as the means for pulling the composite through the die, and then cooling said shaped composite article to a temperature below the solidification temperature of the thermoplastic resin.
9. (original) The process of claim 2, wherein said depolymerizable and repolymerizable thermoplastic is a thermoplastic polyurethane or polyurea.
10. (previously presented) The process of claim 1, wherein said reinforcing fibers are glass, other ceramic, carbon, metal or polymeric fibers.
11. (previously presented) The process of claim 2, wherein said thermoplastic resin is a blend of a depolymerizable and repolymerizable polyurethane or polyurea with one or more of resins selected from the group consisting of: polystyrene, polyvinyl chloride, ethylene vinyl acetate, ethylene vinyl alcohol, polybutylene terephthalate, polyethylene terephthalate, acrylonitrile-styrene-acrylic, ABS (acrylonitrile-butadiene-styrene), polycarbonate, aramid and polypropylene resin.